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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,068	07/06/2001	Gerald E. Markley	GJH-0102	8590

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EXAMINER

GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,068

Applicant(s)

MARKLEY ET AL.

Examiner

Walter D. Griffin

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: In the first paragraph on page 1 of the specification, the reference to application 08/702,334 as being abandoned is incorrect. That application issued as US Patent 6,007,787.

Appropriate correction is required.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 22 has been renumbered as 21.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1764

Claims 1-11 are indefinite because the expression "said feedstock" in line 5 of claim 1 lacks proper antecedent basis. Prior reference is made to a "feedstream". For consistency, the expression "said reacted feedstock" in line 9 of claim 1 may also have to be changed.

Claims 12-21 are indefinite because the expression "said feedstock" in line 6 of claim 12 lacks proper antecedent basis. Prior reference is made to a "feedstream". For consistency, the expression "said treated feedstock" in line 10 of claim 12 may also have to be changed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushio et al. (US 5,316,658).

The Ushio reference discloses a process for removing sulfur and nitrogen from a petroleum distillate. The process comprises contacting the feed and hydrogen with a catalyst in a first reaction zone to produce a first reaction zone effluent having a sulfur content of 0.05% by weight (500 ppmw) or lower. The first reaction zone may employ a cobalt-molybdenum on alumina carrier catalyst and is operated at conditions that include temperatures ranging from 350° to 450°C and pressures ranging from 45 to 100 kg/cm² (640 to 1422 psi). The total amount of active metals on the first zone catalyst ranges from 1 to 30% by weight. Countercurrent flow may be used in the first reaction zone. The effluent from the first zone is then passed along with hydrogen to a second reaction zone to contact a second catalyst. A nickel-molybdenum on alumina carrier catalyst is specifically disclosed as being an effective second zone catalyst. Conditions in the second zone include temperatures ranging from 200° to 300°C and pressures ranging from 45 to 100 kg/cm² (640 to 1422 psi). Countercurrent flow may be used in the second reaction zone. See col. 2, line 43 through col. 5, line 27.

The Ushio reference does not disclose the nitrogen content of the effluent from the first reaction zone, does not disclose the concentration of the cobalt or molybdenum in the first zone catalyst, and does not disclose the use of a second zone catalyst that comprises nickel, molybdenum, and tungsten.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio to produce a first zone effluent having nitrogen concentrations within the claimed range because nitrogen is a known undesirable

Art Unit: 1764

component. Therefore, one having ordinary skill would reduce the nitrogen concentration to an amount as low as possible to improve the properties of the resulting product.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio by utilizing catalysts in the first zone that have cobalt and molybdenum amounts within the claimed ranges because any concentration of the individual metals that results in a total metal concentration within the disclosed range would be expected to result in an effective first zone catalyst.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio by utilizing a second zone catalyst that comprises nickel, molybdenum, and tungsten because Ushio discloses that tungsten has hydrotreating activity. Therefore, the inclusion of tungsten in a catalyst that also contains nickel and molybdenum would be expected to result in an effective hydrotreating catalyst.

Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushio et al. (US 5,316,658) as applied to claims 1 and 12 above, and further in view of Trachte et al. (US 5,198,099).

As discussed above, the Ushio reference does not disclose an additional reaction zone following the second reaction zone.

The Trachte reference discloses the hydrocracking of a petroleum distillate that has been previously hydrotreated in a two-stage hydrotreatment process. See col. 1, lines 45-66.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio by including a hydrocracking step following the second hydrotreating zone as suggested by Trachte because the resulting product

Art Unit: 1764

will be substantially free of heteroatoms and have other desired properties and because the hydrocracking zone will have long term activity maintenance since the feed to the hydrocracking zone will be sweet.

Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushio et al. (US 5,316,658) as applied to claims 1 and 12 above, and further in view of Scott (US 3,425,810).

As discussed above, the Ushio reference does not disclose the use of a reaction stage that contains a vapor passageway.

The Scott reference discloses a hydrotreating apparatus that contains a vapor passageway through or around at least a portion of a catalyst bed. See Figure 1 and column 5, lines 5-12.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio by utilizing an apparatus that contains a vapor passageway through or around at least a portion of a catalyst bed as suggested by Scott because disruption and attrition of the catalyst is reduced and because liquid entrainment in the vapor would be eliminated.

Conclusion

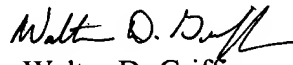
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon discloses hydrotreating processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

Art Unit: 1764

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
March 7, 2003